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Title: iHiFi Project/Task Lower S-Band Telemetry Transmitter

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iHiFi Project/Task

Lower S-Band Telemetry Transmitter

Progress to-Date

March 03, 2016

iHiFi: S-Band Telemetry Transmitter

- **Conceptual Design Accomplishments**
 - Completed basic engineering survey of S-band telemetry transmitter vendor market
 - Key parameters: Mil/Aerospace, > +15W output power
 - Provides team with “typical” and “best” size, weight, power envelope targets
 - Clarifies what value can be added in a custom LANL implementation
 - Base environmental requirements collected (*on-going*)
 - Provides critical gauge of electronic parts requirements/constraints
 - Key drivers identified as thermal and single-event effects
 - Generated base functional architecture and performance targets for telemetry transmitter
 - Fed initial concepts up to system level to support mechanical as well as battery design
 - Identified existing ISR intellectual property to jump-start circuit design and implementation
 - ISR CubeSat Team provides circuit seed for Modulator/Up-Converter and Driver

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Slide 2

iHiFi: S-Band Telemetry Transmitter

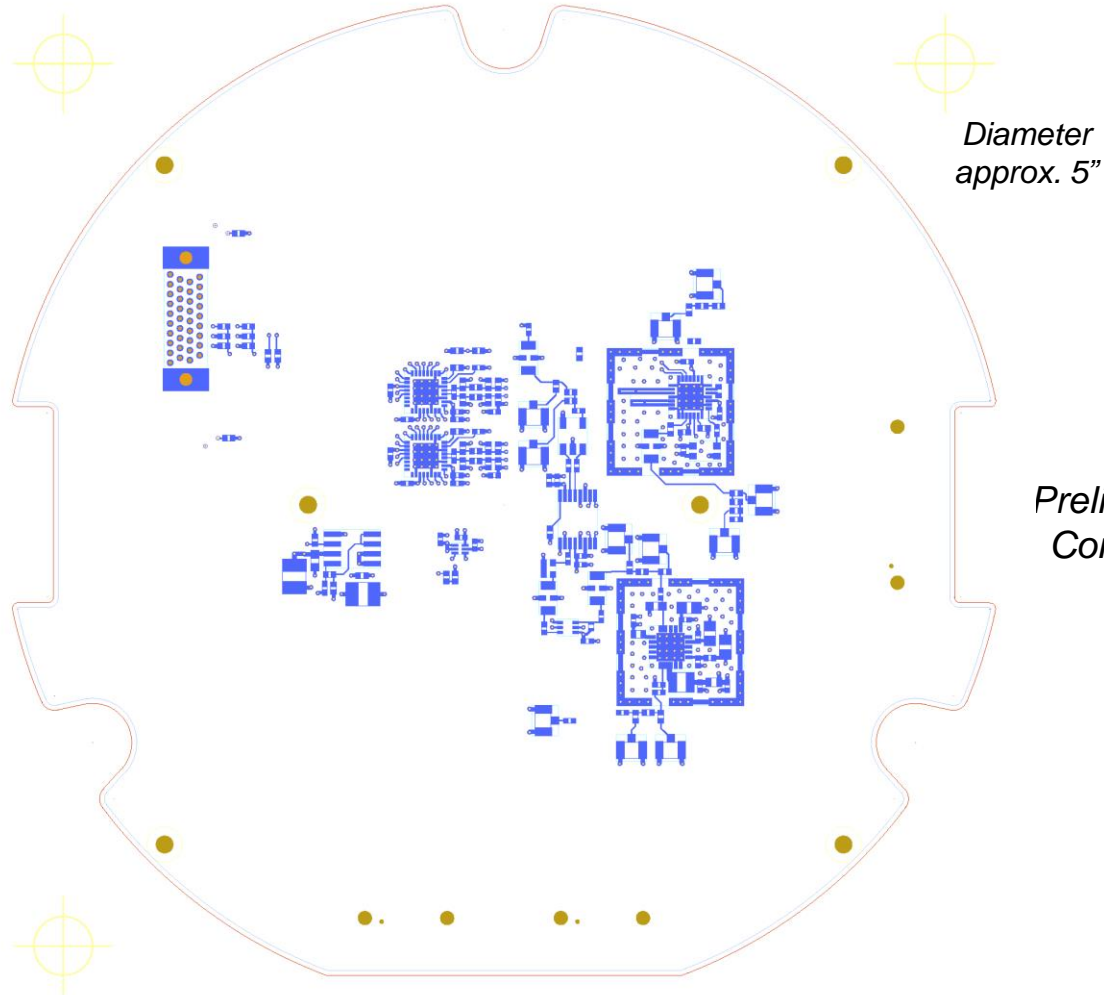
- **Preliminary Design Accomplishments**
 - Modulator/Up-Converter/Driver circuitry captured
 - CubeSat transmitter circuit-base ported to Mentor's DX Designer (schematic and PCB layout)
 - Layout details successfully fed to mechanical design to yield preliminary layout of this subcircuit
 - Key to overall system sizing and interconnect planning
 - Executed and tabled preliminary outreach to selected vendor (NuWaves) for COTS implementation of Power Amplifier portion of system
 - Solidifies the technical need for a in-house narrowband alternative that is performance tuned and custom packaged to meet our application and environment
 - Custom Power Amplifier circuit design candidates being developed
 - Baseline layout based upon 25W GaN on SiC device has been fed to mechanical for packaging design consideration

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iHiFi: S-Band Telemetry Transmitter

- Backup



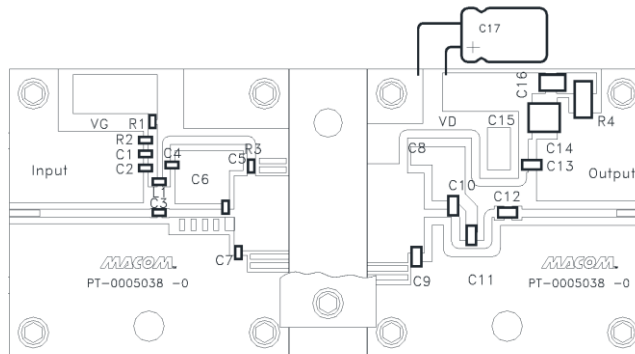
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iHiFi: S-Band Telemetry Transmitter

- Backup

*Height
approx. 1"*



Width approx. 2"

*Preliminary Power Amp
Layout
(Vendor Test-Board)*

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